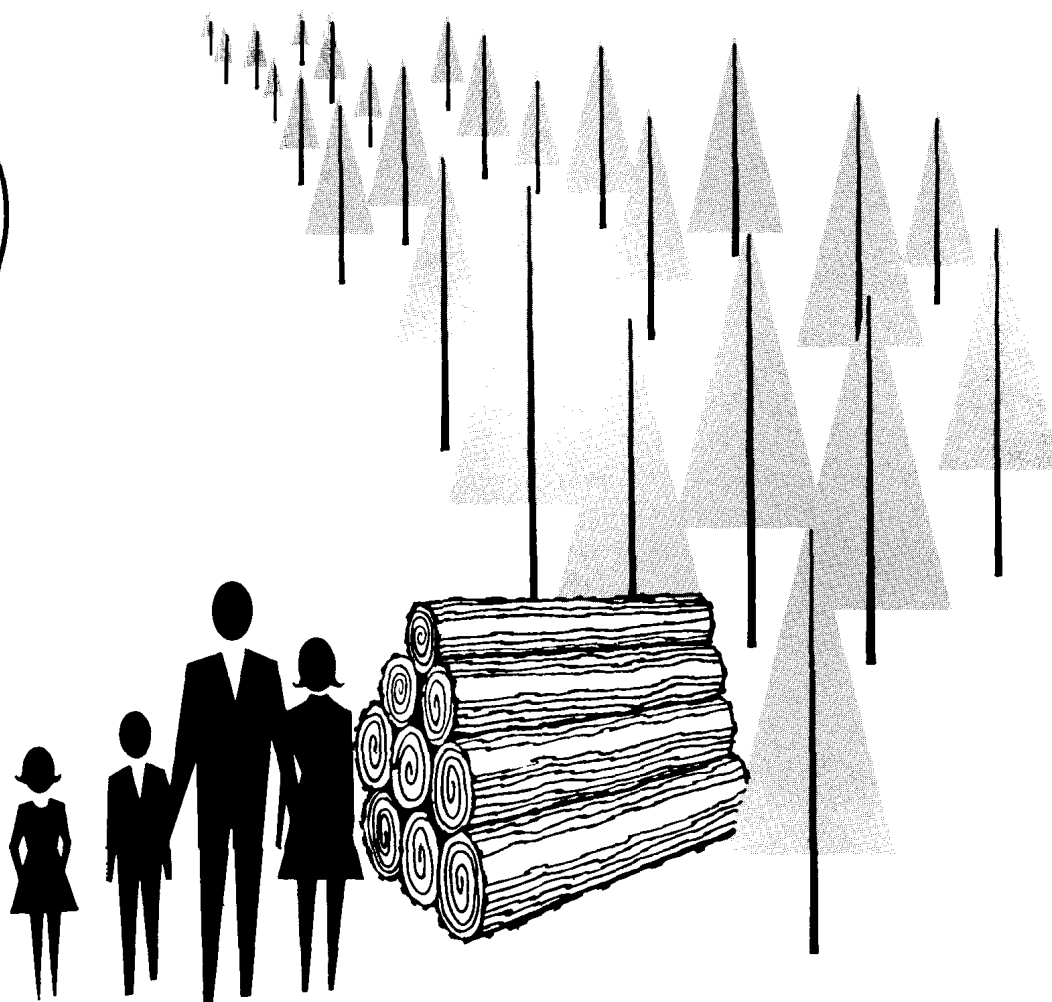




PHOTO STORY No. 18



America's Need ---for wood & forest environment

Americans need woodand, the forest environment needs conservation.

Can both needs be satisfied???????

"Yes", forest researchers say. "We can develop smooth-working harvesting machines which will provide us with all the wood we need. And, at the same time, do it in a manner calculated to protect the forest environment. We may even be able to improve the forest as well."

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In tomorrow's forest, there will be little, if any need for the Paul Bunyan type of forestry.....axe-one-two, chop-three-four. Nor will there be need for the back-breaking, dangerous, time-consuming, environmentally destructive days of yore.

Though future forestry operations may be as automated as our present-day auto-factories are, they will provide a safe atmosphere. And, if the researchers have their way, "logging operations will have a positive effect on the forest environment."

With a cutting that is fast, safe, and does not unduely disturb the forest, there will be little if any harm on the resource. Then, at a faster pace, the forest will revegetate itself, replacing the previous harvest, and bringing a new crop of trees for the continual needs of man for wood products.

In Morgantown, W. Va., Forest Service research engineers are turning farsighted eyes toward tomorrow's forest harvesting. They are presently at work on the basic redesign of machines and systems for felling, transporting, and handling timber. When the basic problems are under control, they will go on to seek ways to make the forests of tomorrow work for man.

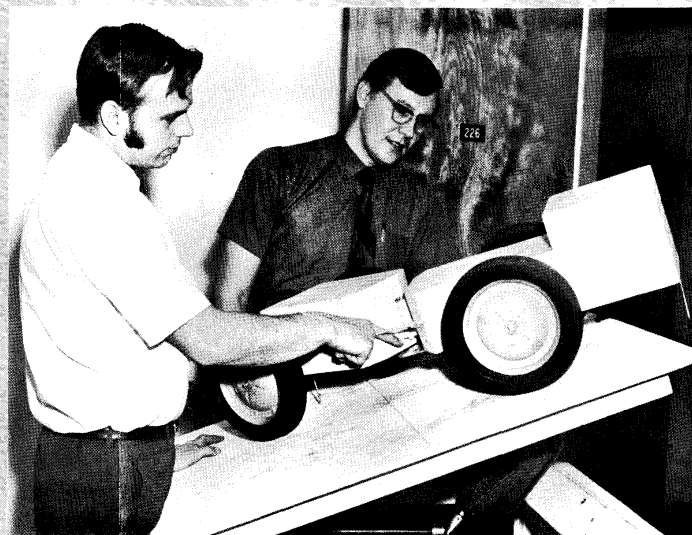
Working under project leader Harry Gibson these researchers are redesigning logging tractors and wheeled skidders --- machines used to drag logs from the woods. They want to increase safety and log production efficiency, as well as the quality of the forest environment.

Logging roads, long a problem in Appalachia, are being studied for ways in which they can do the job of moving the logs out of the woods, without harming the ground cover. To cut down on stream pollution, caused by erosion from logging roads, these engineers are perfecting layouts and designs for roads that will be constructed along mountain ridges, rather than near streams.

Project engineers are also working to perfect methods for harvesting low-grade timber, through adaptation of equipment and techniques from other parts of the world, as well as through development of new equipment and techniques.

When these and other basic forest engineering studies are completed, the Forest Service scientists will be able to set their research sights on techniques for developing futuresque forest logging methods. Today, in the southern softwoods, there are machines for delimbing, topping, felling, cutting into logs, and chipping them into pulpwood right on the spot. "Why can't these be modified for Appalachian hardwood conditions?", Forest Service engineers are asking.

Though efforts such as these now being studied in Morgantown, and in other research laboratories, Americans will have all the wood they need, and the forest environment, they want, at the same time.



Model logging tractor is shown on tilt table where static stability is determined. Cleve Biller left, points to steering angle at articulation point. Project Leader, Harry Gibson, right, looks on. This angle is important in determining stability.



Logging tires were measured in a study to determine effects of road conditions on tire life. Cleveland Biller, Forest Service engineer, found that rocky skid roads did increase tire wear and loggers operating costs.



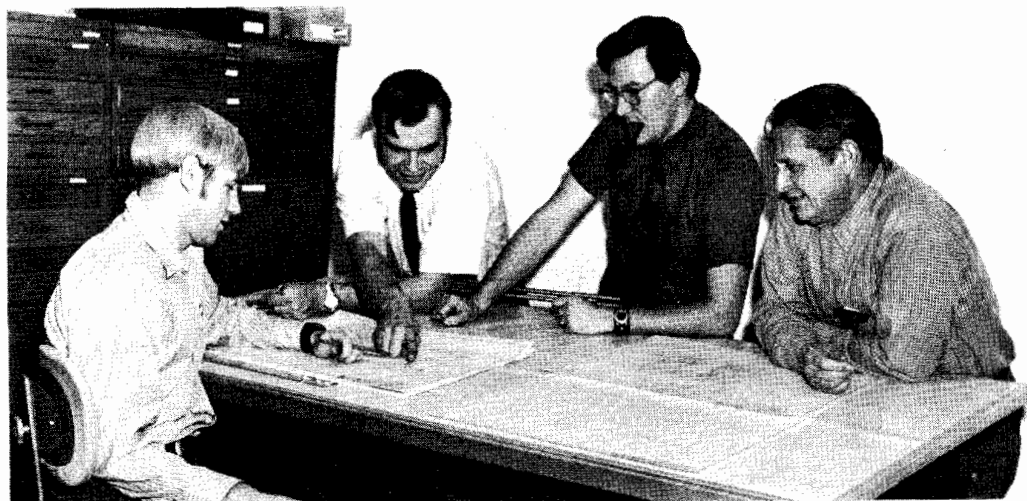
Electronics technician, Ben Thorner and Ross Phillips discuss problems with road roughness instruments. The instruments in the back of the truck indicate and record logging road roughness and could be used to determine maintenance needs.



Celia Bray and Cleve Biller analyze computer out-put and plot results on a graph of log tractor stability tests. From these graphs, the maximum slope a tractor can negotiate can be determined.



Collecting loading data on the Fernow Forest by Forest Service Engineers. Bob Hartman is operating the loader to place the log where the truck driver is directing him. Don Gochenour and Ross Phillips are timing the operation.



Forest Service research engineers Cleve Biller, Harry Gibson and Ross Phillips discuss plans for new logging systems. Engineering Aid Larry Hawkins mans the drafting pencil.